City of Tacoma
NPDES 2001 Annual Report

Submitted March 28, 2002

This annual report is for the reporting period January 1 through December 31, 2001.

1. Status of Implementing the Components of the City's Surface Water Management Program

This report describes the implementation of the City of Tacoma's Surface Water Management Program during 2001. The following reports, documents, and activities were completed in 2001 as per the SWMP schedule:

- The 2000 Annual Report was submitted to Ecology.
- The Snake Lake monitoring and educational programs were implemented.
- New staff people were added to the Surface Water Program.
- Improvements were made in interagency cooperation.
- Improvements were made to the plan review process.
- The City entered into an Interagency Memorandum of Agreement with the Washington State Department of Transportation for participation in a study of structural stormwater controls.

S7B1 Stormwater Management Program Planning Process

Surface Water Utility staff worked with managers and staff from the Wastewater Operations, Maintenance, Streets and Grounds, and Building and Land Use Services Divisions of the Public Works Department to compile the information needed for this report. Participation by elected officials and the public took place in 1995, 1996, 1999, 2000 and 2001. The City Council was updated during 2001 on the Endangered Species Act (ESA) activities that City staff were involved in.

City surface water staff also attended many meetings with the Washington State Department of Ecology (Ecology) and the other NPDES Phase I municipal permitees, related to the proposed new NPDES permit. Most of the meetings took place in the early part of 2001. Issuance of the permit was put off by Ecology until sometime in 2002.

A Tacoma Salmon Team was established in early 2001. The team consists of staff from throughout the City of Tacoma, including 3 members of the Surface Water Utility staff and staff from Wastewater Operations and Maintenance, Budget, Legal, Construction, Planning, Streets and Grounds, Building and Land Use Services, and other program areas. The Team uses a facilitated, Total Quality Process in their development of the "Salmon Plan". This plan will be focused on the City of Tacoma and will provide guidance regarding salmon issues and concerns to all of the various City departments. It is anticipated that the "Plan" will be completed in 2002.

An experienced chemical engineer was added to the Surface Water Program staff in 2001, along with a new water quality representative. A temporary Washington Conservation Corps team began a year long program in November and three project staff people were added as a GPS team to gather data for all City catch basins

S7B2 Water Quality Problems, Needs and Priorities

Analysis of Needs and Priorities

The City's analysis of needs and priorities was included in the SWMP that Ecology approved. The SWMP includes a prioritized list of all of the City's unmet stormwater needs. The bulleted items on the first page of this report highlight many of the unmet needs that were addressed in 2001.

S7B3 Legal Authority

Adoption and Enforcement of Ordinance Containing Standards Equivalent to the Minimum Requirements of Ecology's Stormwater Management Manual

The City's drainage ordinance, Chapter 12.08 of the City Code, is currently in effect. The revisions to the Ordinance and a draft Enforcement Response Plan have been drafted, but are still under review.

Adoption and Enforcement of Ordinance Prohibiting Pollution Discharges to the City's Municipal Stormwater System

The City's existing ordinance currently prohibits the discharge of pollutants to the City's stormwater system.

S7B4 Monitoring

Please refer to Section S12 Thea Foss Waterway Basin Program for information on monitoring activities in the Foss Basin.

The third and final phase of the Snake Lake Sampling and Analysis Plan was completed in September 2001. The entire project included public education activities, two homeowner surveys, as well as in-depth, pesticide-focused, stormwater monitoring. The final report will be submitted to Ecology in March 2002.

The City contracted with Citizens for a Healthy Bay (CHB) for environmental hotline services. In the past, the City's hotline received limited use and CHB's was more active. Therefore, it made sense to combine the efforts of CHB and the City in one phone number. CHB's hotline number (253-383-2429) was operational throughout 2001. An extensive media campaign is planned for 2002 to herald the transfer to the new number.

City staff monitor the shorelines of the entire Commencement Bay area by a City owned boat. This is done on a monthly basis. The monitoring is done at low tide to the extent practicable. Identified problems are addressed.

These bay patrols were performed once each month except August, when two patrols were performed due to missing a patrol in the summer of 2000 when our boat required extensive repairs. Areas of the shoreline continued to be video taped during patrols. If incidents were detected during a patrol, an incident report form was filled out that documented the incident and the follow up action or referral. A selection of the type of incidents that the boat patrol detected is listed below.

- A sunken boat was discovered on the shoreline near one of the Trustee restoration sites near Marine View Drive.
- Discovered some spillage on the shoreline by a local gypsum company. A phone call to the plant manager corrected the problem.
- The City noted wood waste issues at a log haul out facility near a Trustee restoration site.

The benefit of these patrols comes not only from correcting the specific problem, but they also raise the awareness of businesses and the general public about proper operations on and around the water. Copies of the videotapes and the incident report forms are available upon request.

The City is working cooperatively with WSDOT in a study of structural stormwater controls. WSDOT has completed construction of the testing facility in Seattle. Four different treatment technologies will be tested during the first year. Testing is expected to begin in early 2002. It is intended that each technology will remain in place for approximately one year, and that numerous samples will be taken during storm events occurring during the course of that year (up to 20 events). Following the completion of each technology's testing period, the City will evaluate the BMP effectiveness and applicability and reasonableness for use of this technology within the Foss Basin. "Reasonableness" shall take into consideration effectiveness, maintenance requirements, flood control, and cost in comparison to the effectiveness achieved to date in the Thea Foss Basin as a result of the current source control program.

The environmental group, Citizens for a Healthy Bay, is sponsoring a Bay Keeper program. The person hired as the Bay Keeper has a boat and patrols the City's many miles of shoreline. The City provided $10,000 to their program in 2001, and coordinates its efforts with those of this environmental group.

The City of Tacoma provides $25,000 on a yearly basis to help sponsor the Pierce Conservation District Stream Team. Stream Team has many volunteers that do important, but limited, stream monitoring in several streams, i.e. Swan Creek, Puget Creek, and Hylebos Creek. They monitor for pH, temperature, and other basic parameters. Meetings were held between Stream Team and City personnel to focus the program and to identify new monitoring sites.

The Middle Waterway Estuarine Natural Resources Restoration site was completed in October 2000. The first planting of riparian trees and shrubs and the first monitoring event were completed in November 2000. The upper and lower salt marsh areas were planted in 2001. The Middle Waterway Estuarine Natural Resources Restoration Site is the first one to be completed under our consent decree for the Natural Resource Damages Assessment (NRDA). Monitoring was also performed prior to the commencement of the project and after the project was completed in order to ensure that no contamination left the project boundary.

Developers are required to monitor wetlands in areas where wetlands could be impacted by development. They are required to submit reports. Approximately one-half of the City's Wetlands Specialist's time is spent on wetland monitoring activities. These activities include review of monitoring reports submitted as part of the permit approval process, tracking violations, monitoring shorelines, and field visits. The Wetlands Specialist made 83 field visits in 2001 to check monitoring reports, look at violations, and for issuance of permits.

There is an official weather station at the Central Wastewater Treatment Plant and four rain gauges located throughout the City. The rain gauge information is recorded and used as needed. Currently, the City is considering updating these instruments. The City contracts with a weather service and receives weather reports twice a day. This information provides an early warning of heavy rains and potential flooding. Maintenance crews are dispatched to proactively check and maintain trouble spots prior to anticipated heavy rains to ensure the proper operation of the system.

STORM SEWER MONITORING IN COMMERCIAL/INDUSTRIAL AREAS

Please refer to Section S12 Thea Foss Waterway Basin Program for additional information about monitoring in commercial and industrial areas.

S7B5 Fiscal Analysis

The operation and maintenance of the Surface Water Utility is funded from service charges. No revenue is derived from taxes from the City's general fund. Major capital improvements are funded

from revenue bonds and pay-as-you-go financing. The service charges are reviewed annually to insure that they are adequate to pay operation and maintenance costs, debt service, capital improvements and taxes. All changes to the rates must be approved by the City Council.

SURFACE WATER UTILITY

During the reporting period of January 1, 2001 through December 31, 2001, the Surface Water Utility spent $15.0 million. The expenditure categories are as follows:

OPERATIONS:

Transmission	
Personal Services	$643,735.70
Supplies & Other Services and Charges	$455,060.30
Miscellaneous Capital Outlay	$304,808.64
Total	**$1,403,604.64**
Pumping	
Personal Services	$53,845.87
Supplies & Other Services and Charges	$141,135.72
Miscellaneous Capital Outlay	3,730.38
Total	**$198,711.97**
Holding Basins	
Personal Services	$21,020.00
Supplies & Other Services and Charges	$13,154.25
Total	**$34,174.25**
Engineering	
Personal Services	$398,025.24
Supplies & Other Services and Charges	$313,865.37
Miscellaneous Capital Outlay	$5,754.80
Total	**$717,645.41**
Source Control	
Personal Services	$ 794,586.07
Supplies & Other Services and Charges	$202,176.00
Miscellaneous Capital Outlay	20,303.92
Total	**$1,017,065.99**

Laboratory

Personal Services	$274,924.17
Supplies & Other Services and Charges	$81,600.58
Miscellaneous Capital Outlay	$43,450.92
Total	**$399,975.67**

MISCELLANEOUS:

General Services

Personal Services	$520,855.25
Supplies & Other Services and Charges	$3,123,581.10
Depreciation	785,886.16
Total	**$4,430,322.51**

Debt Service

Principal and Interest	$2,449,736.26
Other	$24,297.97
Total	**$2,474,034.23**

Other Department Divisions not included above:

Miscellaneous
unknown at this time

Capital Projects:

T-Street Gulch	$976.74
Coal Gasification Cleanup	$22,936.52
Hosmer Basin	$840,588.76
Foss Waterway Cleanup	$2,089,157.05
NRDA	$672,720.68
Misc. Superfund	$457,962.91
Miscellaneous	$268,745.30
Total	**$4,353,087.96**
Grand Total	**$15,028,622.63**

A description of the types of activities associated with the above expenditures is contained in Volume 3 of Tacoma's Stormwater Management Manual. Relating the budget amount in each of the above categories to the actual expenditures is very difficult at this time. Some activities are budgeted in one activity or organization but are actually spent and therefore charged to a different activity or organization. As a result, the actual expenditure in any one line item does not necessarily relate to the budget number for that same category. Some capital expenditures may be budgeted in the operating budget but the expenditure is taken from the capital budget and vice versa.

The expected revenue from rates in 2002 is $14.5 million. The anticipated expenditures for the year 2002 will likely be about the same as for the year 2001. This is due to increasing activities in the Surface Water Utility. There will be increased emphasis on source control, public education, and on revising the stormwater manual as required by the Department of Ecology. In addition, there are numerous planning, design and construction activities funded by the Utility. Some of these are to comply with federal and/or state orders, consent decrees, mandates, etc. Finally,

there will be added demands on staff and Utility resources with respect to the ongoing impact of the listing of salmon under the Endangered Species Act.

S7B6 Data Management

Development of Land Cover Information Maps and Data

A first draft of the stormwater Geographical Information System (GIS) mapping system is still currently being constructed, corrected and updated, but it is not fully field checked. There are still gaps where storm lines were not added to the system. The City currently has two full-time staff persons updating and correcting the system using recorded drawings, global positioning system (GPS) points, and field inspections. The City also currently has three full-time staff persons working as a GPS team to gather data for all catch basins in the City's stormwater system. The current catch basin data was gathered from a previous planimetric effort using orthographic photos of a City-wide fly-over project. The work management data and critical information of the stormwater GIS system is being maintained and updated within a separate Hansen database. The entire City map of wetlands was completed in 2000 and is currently being updated. The collection of maps in the City-wide GIS is now available to both internal and external customers via the City's Public Works GovMe website.

Description and Location of Major Structural BMPs and Other Structural Controls

The type of mapping is now available and is currently being updated.

Mapping Storm Sewer Outfalls and Tributary Conveyances

This type of mapping has been available for many years and is currently being updated.

Water Quality Complaint Investigations and Database Development and Maintenance

A customer request database and a separate business database are currently in use and are currently being updated.

S7B7 Intergovernmental Coordination

The City continued its involvement in the Tri-County Endangered Species Act (ESA) efforts in 2001. This effort has involved the municipalities of Pierce, King, and Snohomish Counties as well as many of the larger cities, including Seattle, Everett, and Bellevue. Representatives from Ecology, the Tribes, the Ports, environmental groups, businesses, and land developers are also included. City staff have served on many of the Tri-County ESA workgroups including stormwater. The stormwater workgroup completed its proposal.

The Tri-County Roads Maintenance Program was developed through the Tri-County ESA process. The program was adopted by the City of Tacoma.

City staff also participate in Ecology's Stormwater Policy Advisory Committee. This Committee meets about every two months and provides guidance to Ecology on stormwater policy issues.

City staff met with Stan Ciuba from Ecology and representatives from Pierce County to review the changes that had taken place in Ecology's Stormwater Management Manual, Volume IV, Source Control BMPs.

The City of Tacoma is also participating in Ecology's Technical Review Committee (TRC). The TRC will evaluate vendor submissions on emerging stormwater treatment technologies. Based on the evaluation, the technologies may be approved by Ecology, through the TRC, for use as part of a stormwater treatment train and/or as stand alone BMPs (Ecology 2001). The results of these efforts will be used to determine whether effective technologies currently exist for reducing concentrations of contaminants of concern in stormwater.

A lot of intergovernmental coordination takes place in the implementation of the stormwater program specific to the Foss Waterway. Please refer to S12 Thea Foss Waterway Basin Program for additional information about coordination activities.

Meetings were also held with representatives of the Washington State Conservation Corps (WCC) to discuss possible future partnerships and programs. A program was implemented in November 2001 and the Surface Water Utility is sponsoring a WCC work crew through October 2002.

The City has entered into an Interagency Memorandum of Agreement (IMOA) with the Washington State Department of Transportation (WSDOT) for participation in a study of structural stormwater controls. For the City of Tacoma, the overall intent of this IMOA is to work collaboratively to verify the performance of temporary and permanent stormwater treatment technologies, and to evaluate the applicability of these technologies to the conditions in the Thea Foss Waterway. Other participants in this study are The Civil Engineering Research Foundation through the Environmental Technology Evaluation Center (EvTEC), the Washington State Department of Ecology, the City of Seattle, and the University of Washington. Please refer to Section S7B4 Monitoring for more information on this program.

The City held several NPDES coordination meetings with the Port of Tacoma during 2001.

Water quality staff met with staff from other municipalities several times during 2001 to discuss program implementation, exchange ideas, and resolve problems.

Staff participated in a meeting held by the Pierce County Environmental Educator's group.

GENERAL COORDINATION FOR MONITORING, MAPPING, DATA MANAGEMENT AND MODELING

The City continues to coordinate a variety of activities with other municipalities and agencies. Issues related to the Flett drainage basin are coordinated with Pierce County, Lakewood, and the Washington State Department of Transportation (WSDOT). Activities related to the ASARCO site are coordinated with the City of Ruston, Metro Parks Tacoma, and the United States Environmental Protection Agency (EPA). Issues related to the clean up of the Foss Waterway are coordinated with WSDOT, EPA, the Army Corps of Engineers, the Washington State Department of Natural Resources, the Puyallup Tribe, and Ecology. Activities related to the T-Street drainage basin are coordinated with Pierce County. Activities related to the Leach Creek drainage basin are coordinated with the cities of University Place and Fircrest. There is also an environmental group that has formed with Leach Creek as its focus. The Surface Water Utility staff has met with and has coordinated information with this group. Activities in NE Tacoma, including the Joe's Creek drainage basin, are coordinated with Federal Way. Activities in the Hylebos Creek drainage basin are coordinated with the cities of Federal Way, Fife, Milton, and Edgewood, and with Pierce and King Counties.

The City has also coordinated activities with the environmental group, Citizens for a Healthy Bay (CHB). Coordinated activities have included $10,000 in City financial support for the Bay Keeper program in 2000 and again in 2001, and funding to support their operation of an environmental hotline. This hotline will be extensively advertised as a place for citizens to report environmental threats to water quality. The City has also worked with this group on storm drain stenciling and plantings along the Middle Waterway. Partnerships with this environmental group are continuing into 2002.

GENERAL COORDINATION FOR CONTROL OF STORMWATER POLLUTION FROM OTHER JURISDICTIONS

The City continues to coordinate with other jurisdictions and agencies in a variety of ways. The City participates in the NPDES municipal permittees group, the Puyallup River Watershed Council, the Hylebos Watershed Action Team, the Chambers-Clover Creek Interim Watershed Council, and

the APWA Stormwater Managers' Meetings. Funds are provided to the Pierce County Conservation District to support the Stream Team, which is sponsored by Tacoma, Pierce County, and the cities of Puyallup, Fife, Sumner, and Lakewood.

DEVELOPMENT OF COORDINATED SWMPS FOR WATERBODIES SHARED WITH OTHER MUNICIPAL PERMITTEES

The City coordinates with other municipalities to address stormwater concerns in shared waterbodies as described above.

S7B8a Runoff from New Development and Redevelopment

DEVELOPMENT OF AN ORDINANCE CONTAINING MINIMUM TECHNICAL REQUIREMENTS EQUIVALENT TO ECOLOGY'S MANUAL

The City developed a draft Stormwater Management Manual, Volume I - Design that was submitted to Ecology in 1995 for comments. An Equivalency Document for this manual was submitted to Ecology for review in 1999. Work was started in 2001 to update the City's design manual and the update will be completed in early 2002. The City's surface water ordinance, Chapter 12.08 of the City Code, is under revision and will be presented to the City Council for adoption in 2002.

The Environmental Services Science and Engineering Division reviews all stormwater plans for new development and redevelopment projects. All designs are reviewed for compliance with the minimum requirements including BMPs for erosion control, water quality, and detention. Plans are also reviewed for compliance with the City's excavation and grading ordinance and the critical areas preservation ordinance. All stormwater facilities designed by City staff are designed in accordance with the City's stormwater manual. Environmental Services works with both the Building and Land Use Services (BLUS) and Construction Divisions of the Public Works Department to provide plan review for various projects/permits throughout the City.

The BLUS Division of the Public Works Department administers the permitting process for all City building permits and land use actions. They collect the permit fees and route all plans to the various City departments for review. BLUS provides conditions for various land use actions such as: rezones, subdivisions, wetland and shoreline permits. BLUS inspectors provide the inspections for all private construction projects including grading and erosion control. BLUS also distributes NPDES Construction Notice of Intent forms to all developers who have projects that will include 5 acres or more of land clearing activities. These projects require a separate NPDES permit from Ecology.

The Construction Division of the Public Works Department administers City projects and all work performed in City right-of-way. Their administration includes plan review for these projects. Inspectors for the Construction Division provide the inspections for work within the right-of-way, including installation and maintenance of appropriate BMPs.

In 2000, the Environmental Services plan review process was improved by adding a lead engineer and three additional staff members to the program. Staff includes one engineering technician and three engineers including the team lead. By dedicating a specific team to stormwater plan review, the City has increased the timeliness and quality of the plan review process in 2001. The team provides pre-submittal consultations that identify surface water design requirements prior to applicants' submission of designs for building permits. These consultations allow the City to identify potential erosion and water quality issues prior to plan submittal. The plan review team also provides comments to the City's Building Official and Land Use Adminstrator to use as conditions on various land use actions.

In November 2001, the City co-sponsored the Pacific Northwest International Erosion Control Conference. Almost the entire Science and Engineering Division surface water staff and others from throughout the Public Works Department attended the conference and many of them took the class for the Certified Professional in Erosion and Sediment Control. The conference consisted of several presentations of innovative erosion control techniques as well as informational booths for the different vendors of the specialized best management techniques. The City also provided an informational booth regarding its surface water program. Two City staff members won the conference sponsored Hydrorodeo.

S7B8b Existing Residential and Commercial Development Runoff

The City's current program includes business inspections, drainage complaints, interagency coordination, stormwater education, and a major source control effort in the Foss Waterway drainage basin and enhanced activities in the Snake Lake drainage basin.

The City has had an ongoing business inspection program for several years. The program focuses on three different types of inspections: formal business inspections, informal inspections or focused inspections, as well as special projects. Approximately twenty-one stormwater specific inspections were done were in the Thea Foss drainage basin. Please refer to S12 Thea Foss Waterway Basin Program for more information about these inspections. Fifty-five other stormwater specific business inspections were done in 2001.

The Washington State Department of Transportation (WSDOT) has an outfall associated with SR509 where it crosses the Foss Waterway. There have been problems associated with the outfall's tide gate. WSDOT provided a new tide gate to the City and the City did the design, permitting, and installation of the tide gate.

The City has a Washington State Department of Ecology delegated Wastewater Pretreatment Program. The staff who perform these inspections also look for stormwater problems. Seventy-three inspections were done with respect to thirty-six businesses and sixty-five sampling events were completed for the same businesses. These inspections and sampling events were completed during the Pretreatment Program's reporting year, July 1, 2000 to June 30, 2001. The Pretreatment staff also respond to stormwater complaints for the Surface Water Utility staff when they are not available. They also respond to spills for Ecology.

The City has a South Tacoma Groundwater Protection District that is located in the south central part of the City. The ordinance that created the district mainly addresses above and below ground storage tanks. The Tacoma-Pierce County Health Department inspects these businesses for proper chemical storage. Many of the businesses in this district are located in the Foss Watershed. Approximately two hundred and eleven business inspections were done by Health Department staff in 2001.

A record rainfall event (4.2 inches in 24 hours) occurred in November resulting in numerous sewage and stormwater flooding events throughout many parts of the City. The City implemented its emergency plan which requires all staff to investigate and abate these situations, including processing damage claims against the City. The resulting investigations, action, paperwork, and debriefings took considerable time. The emergency plan and teamwork worked exceptionally well.

S7B8c Municipal Storm Sewer Operation and Maintenance

The Public Works Department has an Environmental Services/Maintenance Division that is responsible for maintaining both the storm drainage and the sanitary sewer systems. The following table indicates the level of maintenance efforts that were completed during 2001.

Municipal Storm Sewer Operation & Maintenance
January 2001 to December 2001

# of CBs Mapped, GPS		5,213
# of CBs Checked and Cleaned		4,648
# of Scuppers Cleaned		391
# of Culverts Maintained		119
# of Ditches Checked and Maintained		1,315
# of Detention Ponds & Holding Basins Checked and Maintained		281
# of Manholes Checked		528
# of Manholes Cleaned		106
Storm Drainage & Flooding Problems Calls		603
Mainline Activities:	Velocitied	1,993
	Flushed	839
	Cleaned	10,364
	Backcut	7,883
	Checked	8,087
Total # of Feet Maintained		29,166
Mainline Inspections:	In House	17,464
	Pay	18,094
Total # of Feet TV'ed		35,558

The Environmental Services/Maintenance Division is developing a comprehensive maintenance program that will extend the life of facilities and systems, and improve system reliability and performance. This program includes maintenance improvements and modifications, monitoring and evaluation of system performance, and the development of specific performance standards for each maintenance activity. Some of the critical maintenance activities included in the maintenance program are: TV inspections, catch basin inspection and cleaning, ditch inspection and maintenance, and the cleaning of scuppers and sumps.

The City is working on the development of a program for private stormwater facility maintenance. These responsibilities have been included in the City's proposed new updates to the stormwater ordinance.

Vactor waste is currently being decanted and the dry material is used at the landfill as daily cover. The liquid waste is being discharged to the sanitary sewer. Testing continues to be performed on the dry material before disposal.

The Surface Water Management group has sponsored a Washington Conservation Corps (WCC) crew from November 2001 through October 2002. The WCC is a job training and service program for young adults who are dedicated to conserving and enhancing the natural resources of Washington State. The crew will be completing City maintenance projects as well as community proposed projects. The City feels that this is an important program and valuable to the community and the environment.

In 2001, Transmission continued to refine procedures in using the database and develop reports that more accurately reflect work performed. These changes account for some variations when compared with previous years, however, the new method will result in a more accurate benchmark for future years.

S7B8d City Road Operation and Maintenance

The Streets and Grounds Division of the Public Works Department is responsible for road operation and maintenance. This division sweeps the streets, does manual cleaning of stormwater features such as culverts and catch basin grates, has a fall leaf pick-up program, has a de-icing and snow removal program, and responds to spills.

Operations in 2001 were very similar to those in 2000. The City had 2 or 3 sweepers in use on a daily basis. Approximately 4,300 miles of streets were swept and 4,500 cubic yards of material were collected.

Staff from the Streets and Grounds Division also were very active participants in the Tri-County ESA efforts during 2001. They have proactively adopted the Streets and Roads Program developed by the Tri-County group, and are currently implementing the activities in this program. Additional training needs were identified with respect to this program and they have started work on developing the necessary training.

S7B8e Water Quality Considerations in Flood Management Projects

The capacity of the Hosmer holding basin was increased in 2001 through a major capital improvement. The project was completed in cooperation with the City of Lakewood, Pierce County, and the Washington State Department of Transportation. Over 44,000 cubic yards of earth was excavated and the storage volume was increased by 24% to reduce local flooding. In addition, 5.7 acre-feet of dead storage was added for water quality treatment. An innovative truck washing system was utilized during construction to minimize the off-site tracking of sediments.

S7B8f Runoff from Pesticide and Fertilizer Application

Educational efforts in this area were incorporated into the City's overall educational programs.

The City participated with other municipalities in a lawn mower exchange program. Mulching mowers were offered to the public at a discount. Through this program, 454 electric mulching mowers were sold in Tacoma. The use of these mowers will reduce the need for lawn fertilizer application, will reduce air pollution and energy use, and will reduce the amount of solid waste that is generated.

S7B8g Illicit Storm Sewer Discharge Elimination

The elimination of illegal discharges is one of the City's top stormwater priorities. The City currently has an ordinance that is used to enforce the elimination of illicit discharges. This ordinance is currently being revised.

The City has three staff people working towards the elimination of illicit discharges. When they do business inspections, they provide the business operators with technical assistance regarding the elimination of illicit discharges and they educate business operators about the proper BMPs to use. Volume II of the City's Stormwater Management Manual, "Stormwater Pollution Prevention Manual: A Guide to Best Management Practices for Industries, Businesses and Homeowners", is used in the industrial stormwater program for guidance in the storage and containment of chemicals.

The field staff observe or assist emergency response agencies with spill response activities. They provide the agencies with information on the City's stormwater system with the goal of keeping the spilled material out of the system. They continue to work with mobile washers and charity car wash operators to ensure that these types of washing activities are done correctly. The field staff also responds to general concerns regarding water quality problems.

The City has focused on the issuance and regulation of Special Approved Discharge Permits, especially with respect to dewatering activities that take place on some construction sites. There are two ongoing permits that have been issued. Six other permits were issued in 2001, mostly related to construction sites.

The City has a household hazardous waste disposal and recycling center located at the landfill. This popular facility provides a place for the community to safely dispose of waste products that otherwise might end up in a storm drain.

S7B8h Industrial Stormwater Monitoring and Control

The City reviews all commercial plans for adequacy of the private storm sewer systems and their connection to the City's system. New construction is inspected to ensure compliance with City requirements.

The City's four sanitary source control pretreatment staff inspect industrial sites. They also look for stormwater problems during their inspections. The industrial inspections are coordinated with Ecology staff as appropriate. This coordination includes the referral of problem sites to Ecology when the industry has an industrial NPDES permit.

S7B8i Stormwater Education

EMPLOYEE EDUCATION

The City encourages its Surface Water staff to participate in continuing education. Numerous staff people have attended workshops and classes on both a regional and national level. These classes have included topics such as BMPs, water quantity and water quality, and erosion and sediment control.

City staff also participates in the APWA Stormwater Managers' Meetings, the NPDES Municipal Permittees Work Group, the Puyallup River Watershed Council, the Hylebos Watershed Action Team, and the Chambers-Clover Creek Interim Watershed Council. All of these provide opportunities for additional stormwater education.

A Puget Sound Research Conference was held in Bellevue in February. The conference was put on by the Puget Sound Water Quality Action Team. The City of Tacoma was a major financial sponsor of this conference and provided a staffed booth. The three-day conference brought together leading scientists, natural resource managers, and students. Scientific research related to the regions' marine and aquatic resources was the focus of the conference. Many people from the Science and Engineering and the Wastewater Operations Divisions of Public Works attended this conference.

In November 2001, the City co-sponsored the Pacific Northwest International Erosion Control Conference. Almost the entire Science and Engineering Division surface water staff and others from throughout the Public Works Department attended the conference and many of them took the class for the Certified Professional in Erosion and Sediment Control. The conference consisted of several presentations of innovative erosion control techniques as well as informational booths for the different vendors of the specialized best management techniques. The City also provided an informational booth regarding its surface water program. Two City staff members won the conference sponsored Hydrorodeo.

Hazardous Waste Refresher – Seven people have this certification that allows a variety of involvement in hazardous waste projects.

Two different and very popular writing classes were offered on-site to the Science and Engineering Division staff.

Most of the Science and Engineering Division surface water staff attended two classes on the use of the computer software, Microsoft Project. These classes were sponsored by the Public Works Department.

Three people attended a QA/QC class that was held by the Department of Ecology at Ecology Headquarters.

The entire Science and Engineering Division surface water staff, including the supervisor and manager, attended a day long field trip of the City's municipal stormwater facilities. The trip allowed the staff to become familiar with the type and location of the facilities and identified "trouble spots" during storms. The surface water staff has developed an emergency response plan for extreme rain events and the field trip helped to educate the staff about their assigned geographic areas.

Several staff from the surface water program received Public Works, Environmental Services awards for exemplary work. These awards were given to the staff members at the yearly Environmental Services staff meeting.

PUBLIC EDUCATION

The City has an extensive public educational program. The City is one of the sponsors of the Pierce Conservation District Stream Team, a multi-jurisdictional effort. The City provides $25,000 in financial support and some supplies to the Stream Team each year. The Stream Team helps interested Tacoma community groups organize storm drain stenciling efforts. They also offer other programs such as wetland and stream bank clean ups and revegetation, workshops, and tours for the public. Specifically, Snake Lake watershed residents and others were invited to attend the Streams and Stormwater Workshop co-sponsored by the City of Tacoma (31 people attended). The Stream Team has a water quality booth that is displayed at various community events including the Puyallup Fair. The Stream Team has a very large, active group of volunteers with 500 Tacoma residents in their database.

Stream Team, Citizens for a Healthy Bay (local environmental group), the City's Surface Water Management Program, Morgan Family Branch YMCA Day Camp, and Papa John's Pizza sponsored a storm drain stenciling day in Tacoma in July. Several families joined the day campers to stencil over 80 storm drains in the Leach Creek Basin.

The Public Works Department Environmental Services dedicated the "Canned Salmon," an 8-foot, aluminum-clad salmon sculpture. This effort was part of Soul Salmon 2001, which put hundreds of salmon sculptures between Vancouver, B.C., and Portland, OR. More than 800 recycled cans

from the City landfill's recycling center were used to create the shimmering red, green, yellow, blue and silver fish scales. Through this creative salmon interpretation, Environmental Services hopes to educate the community about the salmon's lifecycle, inspire local salmon culture, and generate charity to save native salmon.

Curb markers were added to the City's arsenal of public education tools in 2001. These 3.5" x 4" plastic decals are affixed to the top of curbs with adhesive to provide a more permanent reminder to citizens not to dump toxins down the storm drains. Curb markers have been placed in the Snake Lake watershed and Northeast Tacoma area.

Grate Mate is a program administered by PlanetCPR and provides an opportunity for local non-profit groups to make a little money while installing catch basin filters on private property. This also allows for a partnership to form between the City, community, and businesses. The filters, installed in June 2001 in the Foss Watershed, work to absorb oil and collect sediment and debris. Preliminary indications show that the filters are working as predicted and business owners are happy with the program.

Surface Water Management is continuing to work with Metro Parks Tacoma to support a variety of educational efforts that will focus on stormwater and marine life. 2001 is the first year the City committed $20,000/year for five years towards these efforts. In 2001, these monies created two interactive murals painted by a local artist. Next year's monies will be put towards additional murals and curriculum for the zoo's educational outreach programs. The goal is to strengthen the connection between non-point source pollution and Commencement Bay waters in the minds of the visitors. These activities will take place at the Point Defiance Zoo and Aquarium in the Simpson Lab's Discovery Center. Opening date is scheduled for May 2002.

Although the Public Involvement and Education (PIE) funding ended this year, Surface Water, Solid Waste, and Wastewater Management, along with staff from the City's Community Relations Office, continued the EnviroChallenger program. This staffed, mobile educational unit visits 45 Tacoma schools and provides environmental education to K-5 children. The educational programs include: Water Quality, Watersheds, Recycling and Waste Prevention, Household Hazardous Materials, Salmon and the Endangered Species Act, The Waste Stream, and Worm Composting. The coordinator added pre- and post-lessons that teachers can download from the EnviroChallenger website.

The EnviroChallenger messages reached approximately 8,740 kids in Tacoma in 2001, through 380 classroom presentations. The EnviroChallenger continues to be an award-winning program. It received the National Environmental Achievement Award, Public Information and Education-Association of Metropolitan Sewerage Agencies; Award of Excellence-APEX; Gold Award, Environmental Education School Curricula-Solid Waste Association of North America; Silver Circles-Second Place, Marketing Materials-3CMA; Award of Excellence-Third Place, Organizational Excellence Award-Environmental Education Association of Washington; Service Delivery-3CMA; and the Preserve Planet Earth Award-Tacoma Rotary. The program coordinator presented at two conferences, including a national non-point pollution conference in Chicago. The City of Tacoma is very proud of this successful program.

A water quality essay contest was held with Bellarmine Preparatory School 9th grade students. The essay question focused on their understanding of non-point source pollution and ways that it could be avoided. Six students participated and prizes were awarded to the three top essays.

The Science and Engineering, Wastewater Management, and Building and Land Use Services Divisions of Public Works Department participated for the first time in Tacoma's Home and Garden

Show. Knowledgeable City personnel staffed the combined booth. Approximately 250 people stopped by the booth and many questions were answered during and after the show.

Staff participated in a variety of other educational activities such as Channel 12-TV Tacoma appearances. Staff also assisted with the Stream Team's water quality booth at the Puyallup Fair. Surface Water Management also distributed flyers and posters focused on things that the community could do to protect water quality such as car washing, auto maintenance, pet waste disposal, and use of yard chemicals.

Staff spent a lot of time working with a consultant in the development of a surface water management web page. The web page is designed to provide the public information about the program. It will be up and running in early 2002.

Environmental Services developed and distributes an "Envirotalk Newsletter". The six-page newsletter, which is printed on recycled paper, includes articles relevant to the Surface Water, Wastewater, and Solid Waste Utilities and is distributed three times per year. All 53,000 utility ratepayers receive the newsletter in the fall, winter, and spring.

The Surface Water Utility developed a proposed educational grant program in 2001 that will likely be implemented in mid-2002. The proposal consists of grants to be made available to fund community projects that will educate the public about preventing pollution and protecting clean water, and to assist existing businesses with water quality projects. A total of $50,000 will be made available each year with grants being offered in two categories: up to $1,000, and from $1,000 to $2,500.

The Clean Bay Car Wash program was offered again in 2001. Car wash kits were loaned to non-profit groups to ensure that the dirty wash water from charity car washes was safely discharged to the sanitary sewer, instead of draining to the stormwater system.

City staff, and the boat, participated with Citizens for a Healthy Bay and the Tacoma Fire Department to educate the public about water quality and projects related to the Foss during the Maritime Fest. The event is located on the Foss Waterway.

Education of the public also took place during and as part of the business inspection program.

S12 Thea Foss Waterway Basin Program

The City's NPDES municipal stormwater permit, issued in 1995, contained a special provision requiring the development of a stormwater program specific to the Foss Waterway. Much of the work to establish the program was done in 1995 and early 1996, prior to this reporting period.

Source control activities conducted within the Thea Foss Waterway Basin during 2001 are documented in the Quarterly Source Control Reports submitted to Ecology and EPA. In 2001, source control efforts within the Thea Foss Waterway Sub-watershed continued to focus on outstanding issues and concerns. A detailed list of ongoing issues and concerns has been compiled by the Stormwater Source Control Workgroup, consisting of representatives from the City of Tacoma, the Department of Ecology (Ecology), the Environmental Protection Agency (EPA), the Thea Foss Participants' Group, and Citizens for a Healthy Bay. The Workgroup meets quarterly to cooperatively discuss and provide status updates on each action item.

STORMWATER WORKPLAN ADDENDUM

During 2001, the City worked with the Environmental Protection Agency to finalize the details of the Stormwater Workplan Addendum. The final document was submitted to EPA in January 2002. This Workplan Addendum outlines the various activities that the City is performing to prevent recontamination of the receiving water sediments within the Thea Foss and Wheeler-Osgood Waterways. A schedule for these activities is also included. The document includes a description of ongoing stormwater monitoring efforts, studies, source control efforts and BMP assessments, as well as an approach to future stormwater source control decision-making. Specific activities outlined in the document include:

- NPDES Stormwater Monitoring for Thea Foss and Wheeler-Osgood Waterways
- Phthalate Source Study for Thea Foss and Wheeler-Osgood Waterways
- Total and Dissolved Constituents in Stormwater for Thea Foss and Wheeler-Osgood Waterways
- WSDOT/UW and other Stormwater Technology Studies
- Source Control Program

Quarterly and Annual Source Control Summary Reports will be submitted to EPA and Ecology under this program. The NPDES Stormwater Monitoring for Thea Foss and Wheeler-Osgood Waterways will be conducted under an Administrative Water Quality Order No. DE 01WQHQ-3241 issued by Washington State Department of Ecology on September 13, 2001.

WATER QUALITY ORDER FOR NPDES STORMWATER MONITORING

During 2001, the City worked with EPA and Ecology to finalize the NPDES Stormwater Monitoring Sampling and Analysis Program. Under the program, seven outfalls discharging to the waterway will be monitored for five years. Ten storm samples and four base flow samples will be collected at each outfall per year. In addition, sediment trap samples at each of the outfalls will also be collected every fall/winter of each year. The resulting data will be summarized and evaluated in an annual report. The sampling program started in late August 2001. The first annual report is to be completed in December 2002 for the first sampling period of September 2001 though August 2002.

INSPECTIONS

In 2001, twenty-one stormwater specific inspections were conducted at businesses within the Thea Foss Sub-watershed. Most of the inspections were performed to evaluate compliance status at businesses where concerns were previously noted. Summaries of inspection activities are contained in the quarterly reports.

Please refer to section S7B8b Existing Residential and Commercial Development Runoff for inspections done as part of the City's Wastewater Pretreatment Program.

EDUCATION

The City continues to provide residents and businesses with educational handouts and pamphlets pertaining to BMPs. Residential letters and pamphlets are routinely distributed in neighborhoods following complaint investigations. During inspections, businesses are provided both general and specific BMPs targeting applicable activities. Staff participated in the Maritime Fest, a festival held on and next to the Foss Waterway.

COMMERCIAL AND INDUSTRIAL MONITORING

A variety of activities were completed with respect to the monitoring of commercial and industrial sites. A WSDOT landfill site under the 38th Street East bridge and an old fill at South 35th Street and Pacific Avenue were monitored. The WSDOT site was found to be discharging to the storm system and the agency was requested to install appropriate BMPs and to reroute the discharge to the sanitary sewer. No problems were found with the old fill site.

Extensive work was done installing, maintaining and sampling sediment traps. Additional information about the sediment traps and other commercial and industrial monitoring activities are included in the quarterly reports.

SPILLS

Throughout 2001, City staff responded to a number of spill complaints. The spills included two pickle brine spills and one 50% sodium hydroxide leak from a tanker truck that spilled onto two arterial streets. Spills reports are kept on file and reported to the agencies in the quarterly progress reports.

2. Notification of Any Recent or Proposed Annexations or Incorporations

A ¾-acre parcel at East 91st Street and McKinley Avenue was annexed by the City in 2001. The annexation became effective on January 1, 2002.

3. Differences Between Planned and Actual Expenses

Relating the planned expenditures in each of the above categories to the actual expenditures was still very difficult in 2001. The City's budget and fiscal tracking systems are not structured to fit the NPDES needs. They were developed to comply with the State Auditor requirements and conform to the Government Accounting Procedures (GAP). Some activities are budgeted in one activity or organization but are actually spent and therefore charged to a different activity or organization. As a result, the actual expenditure in any one line item does not necessary relate to the budget number for that same category. And finally, some capital expenditures may be budgeted in the operating budget but the expenditure is taken from the capital budget and vice versa. However, based on permit negotiations with Ecology, the requirement for financial reporting will not be included in the next NPDES permit.

4. Revisions, if Necessary, to the Remaining Years of the Fiscal Analysis Reported in the Approved Stormwater Management Program

Revisions to the fiscal analysis section are not necessary.

5. For the Fourth Year Report, a Summary and Analysis of the Cumulative Monitoring Data Collected Throughout the Term of the Permit

The fourth year report was submitted in September 1999.

6. A Summary Describing Compliance Activities, Including the Nature and Number of Official Enforcement Actions, Inspections and Types of Public Education Activities

The Building and Land Use Services Division of Public Works is responsible for the permitting of a wide variety of land use activities throughout the City. They issue residential and commercial building permits, clearing and grading permits, and permits for shorelines, wetlands and other critical areas. They also process all land use permit applications including short plats, formal plats and other activities. During 2001, the following actions were taken:

- Grading and filling permits - 34
- Erosion control inspections - 868
- BMP failure inspections - 94
- Tracking sediment off-site - 175
- Grading inspections – 71
- Wetland permits – 10
- Wetland inspections – 83
- Wetland enforcement actions - 16

City staff made 287 site visits in response to flooding and water quality concerns due to a record rainfall event (4.2 inches in 24 hours) in November. Most of these calls were from private citizens, although staff also tracked visits to the City's stormwater facilities. During the rest of the year, approximately 13 water quality and 18 water quantity complaint calls were addressed. These numbers just represent a portion of the calls that were received. Staff responded to other calls that were not tracked. However, a new tracking system was implemented in January 2002, and all calls are now tracked. These calls related to a variety of concerns such as vehicle storage, working on vehicles, painting, spills relating to vehicular accidents, business practices related to improper storage of chemicals, and vehicle and equipment washing. For the most part, these types of complaints were taken care of through education of the citizens involved.

The Surface Water staff also responded to erosion and sediment control complaints. Problems ranged from lack of, or improperly installed silt fencing, to tracking of sediments onto City rights of way. There were also problems associated with discharging turbid water into the stormwater system via direct connections and/or physically pumping water from a low spot to a catch basin or a manhole.

Staff from the Washington State Department of Ecology also responded to many water quality complaints and concerns within the City during 2001. Some of these sites may have been located in unincorporated areas outside of the city limits of Tacoma, but were tracked as having a Tacoma address. The following numbers were provided by Ecology staff:

- Spill calls except drug labs – 186
- Water quality referrals – 40
- City referrals – 36
- Water pollution calls – 117
- Drug labs - 199

7. Identification of Known Water Quality Improvements or Degradation

The City's Clean Bay Car Wash program was utilized by many charitable groups that sponsored car washes. The use of the car wash kits prevented a lot of dirty, soapy water from entering our stormwater system. Community groups were also educated through this program about the importance of keeping our water clean.

An Ecology permitted industrial site was discharging pollutants to the City's stormwater system. City staff worked in conjunction with staff from Ecology to resolve the problems at the site. The City sent a letter to the company suggesting numerous actions that could be taken to control the discharge, including cleaning out a stormwater pond, sweeping or vacuuming their yard, cleaning up residue on the ground, and cessation of the illegal discharge. Ecology sent them a letter indicating that they were in violation of both their industrial NPDES permit and the state water quality requirements and gave them a time frame in which to respond with a plan for correction. Much of the required work has been completed, but other work remains to be done.

During the investigation of serious cracking and breaks in the clay storm line at Hood Street, a strong chlorine odor was noticed. The odor was investigated in the storm sewer that discharges to Outfall 230 in the Foss Waterway. Samples were taken on several occasions. After a considerable amount of work, the source was found to be a leaking 18-inch diameter water main, owned by Tacoma Water. The water line was repaired and the source of chlorine was eliminated.

Please refer to the Foss Waterway Source Control Quarterly Reports described under S12 Thea Foss Waterway Basin Program for additional information about water quality improvements.

8. Status of Watershed-wide Coordination and Activities which the Permittee has Undertaken Individually or Jointly as Part of the Special Condition S7B7.

Please refer back to S7B7 for information on watershed-wide coordination and activities.